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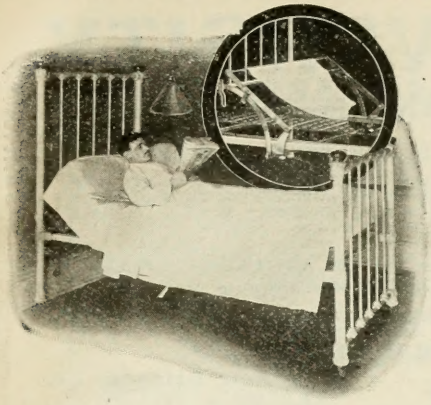

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CHARLES S. BRIGGS, A.M., M.D., Editor.
W. T. BRIGGS, B.A., M.D., Associate Editor.

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Original Communications

ACUTE APPENDICITIS WITH PERITONITIS. THEIR RELATION AND TREATMENT.*

BY JOHN WESLEY LONG, M.D., F.A.C.S.
Greensboro, N. C.

Acute appendicitis should always be hyphenated with peritonitis, or what is better, two hyphens (=), making the algebraic sign of equation, since acute appendicitis continued equals peritonitis. They are as inseparable as cause and effect. While the latter does not always prove the presence of the former, the former rarely fails to produce the latter. The relation between the two is so close that the one often overshadows the other. Patients are brought into the hospital in the ambulance with abdomen distended, rigid, tender, knees drawn up, frequent pulse, septic temperature, etc., with the diagnosis of "appendicitis." Strangely enough, the more serious lesion is overlooked in the presence of the initial appendicitis. I would not have you think for a moment that the appendix should be disregarded. Nay, verily, but I do desire to focus your attention upon the larger and

*Read before the North Carolina Medical Society, April 18, 1916.

more destructive phase of the subject. Appendicitis, whether acute or chronic is, surgically speaking, a very simple problem; peritonitis is ever a grave menace to life. The one may be compared to the murder of the Austrian Crown Prince; the other is more like the resulting conflagration that has embroiled almost the entire world.

It is not enough to say "patients with acute appendicitis should be operated upon before peritonitis developes." Even the most ignorant layman will admit so self-evident a proposition after peritonitis is well under way and the patient is getting bad off. It is gratifying to note that the proportion of cases of appendicitis with peritonitis as its chief feature is less than in former years. I hasten to say that delay till peritonitis developes is not always due to inertia upon the part of the family physician. Often he has to contend with the ignorance of the patient, the prejudice of the family and the perniciousness of meddlesome neighbors. Nevertheless, it behooves us to take inventory of our knowledge concerning these desperate cases and establish as nearly as may be possible well-defined rules for their management.

While accumulated experience has crystalized into well-settled convictions concerning this subject, there are yet many questions relating thereto that must be regarded as *sub judice*. Also it must be confessed that the conviction of today may be the doubt of tomorrow. Hence, we must ever maintain the attitude of the student. Another reason why a prudent man hesitates to recommend any special line of treatment is that the unthinking may imagine that the particular method advocated applies to all cases. Nothing could be further from the truth. The subject is so large that we will notice only certain aspects of it.

THE TIME TO OPERATE.

In deciding when to operate no hard and fast rules can be relied upon. One's surgical judgment is the safest guide. As a general proposition, a patient seen within the first twenty-four, forty-eight, or even seventy-two hours should

be operated upon promptly, whether it be daytime or night. You will not understand me to say that it is safe to wait the time limits just mentioned. I urge just the contrary. Every hour lessens with increasing rapidity the chances of recovery. Nor is it exactly correct to measure time by hours alone. The general morale of the patient must be considered. Can he withstand the added trauma of the operation plus the anesthetic? Is there some complication present that may be made worse by the operation? I lost an elderly man recently who was brought in early enough to come within the time limit. Operation was done at once, but the man died within twenty-four hours. His death was not due to appendicitis nor peritonitis, but to nephritis, as was shown by scanty urine, casts, albumen, delirium, and coma. Delay would in all probability have given him a better chance. Postponement carries an extra hazard in children because their omentum is undeveloped, they stand starvation poorly, and their resistance is more readily broken down.

LATE OPERATIONS.

Certain of these patients are seen too late for an early operation. This condition is always a deplorable one multiplied ten-fold. They require the most judicious handling. Figuratively, they are walking over thin ice. The least jar, as from operation, anesthetic, purgation, or even rough palpation, may cause them to break through.

What then shall we do? Ochsner has taught us some invaluable lessons touching the management of such cases. In the first place, let me urge you to neither purge nor feed. There is nothing so harmful in the presence of peritonitis as purgation and feeding. Both increase the gas in the alimentary canal. Gas promotes peristalsis, peristalsis spreads infection. These patients should be propped up, either by elevating the head of the bed or the body of the patient. The position must be a comfortable one, else it is wiser to leave the patient prone. He should be sustained by small nutrient enemas and hypodermoclysis of glucose in salt solution or

sterile water. The Murphy drip method is applicable here. If nauseated or the stomach dilated, frequent gastric lavage is an invaluable remedy. If internes would carry a stomach tube about their necks instead of a shiny cow-horn shaped stethoscope in their outside coat pocket they might be of more service to their patients. In the hospital where I work the nurses are taught to do lavage. They frequently save life thereby.

Operation is best done when the peritonitis is receding rather than spreading. The most gentle manipulation is demanded. In some instances the abdomen may be opened by a puncture incision, using a local anesthetic or a few whiffs of gas. Just a tiny nick through which to insert a rubber tube is sufficient. It is often best to do this without removing the patient from the bed. The tendency among surgeons today is to not delay unduly opening the abdomen even in the worst of late cases.

Some very wise surgeons refuse to remove the appendix, preferring rather to do so later. Certainly, should the patient survive, the appendix can be removed with greater safety subsequently. However, I have always felt that when more than a puncture wound is made and the appendix can be easily removed, it is well to do so, otherwise leave it alone. Here again the general condition of the patient must be carefully studied. It is as important to know what kind of a patient the disease has, as the kind of disease the patient has.

THE ANESTHESIA.

Every factor brought into use in abdominal surgery assumes added importance when applied to appendicitis with peritonitis. The more severe the case, the greater the influence of each factor. This is particularly true of the anesthesia. Nothing connected with abdominal surgery is so barbarously done. Go where you will, in the clinics of this country or Europe, the anesthesias one sees make a conscientious man shudder. Crile has done more than anyone else to teach us the truth regarding anesthetics. Whether or not

his anoci association produces less shock than other methods may be questioned, but most assuredly the principles he lays down are correct. Under no other circumstances does a faulty anesthesia produce more disastrous results than in patients septic from acute infectious appendicitis with peritonitis. Whether one uses ether, gas, or a local anesthetic, he can not walk too delicately.

It gives me great pleasure to say, based upon a somewhat extensive observation both at home and abroad, that America, the birth-place of anesthesia, is leading the world in the matter of safer anesthesia. The indictment brought today is fast losing its significance. Progress is noted in the abolition of chloroform, the open drop method of giving ether so widely popularized by the Mayo Clinic, pharyngeal and intratracheal methods, gas-oxygen anesthesia, and the more extensive use of local anesthetics. But above all else the improvement consists in employing trained anesthetists. No anesthetizer can be called an expert who spends a good part of his time talking with those about him or watching the surgeon to see how he may do the operating himself, the first chance he gets. A nurse with proper qualifications makes a very efficient anesthetist.

THE INCISION.

The incision is a matter of considerable moment. In chronic conditions one may employ almost any incision he fancies. In acute septic abdominal diseases it is imperative that it give the readiest access to the lesion. I have tried every kind of incision, the midline, straight rectus, transverse, semilunar and oblique. I finally settled down to the latter as being the most serviceable.

The incision employed is essentially that of McBurney, though considerably amplified. The illustration* shows clearly its location and successive steps. Note its relation to the

*The drawing was sent to Dublin, Ireland, to illustrate this paper in the "Dublin Journal of Medical Science." Owing to the war conditions it has not yet been returned.

umbilicus, iliac crest and pelvic portion of the abdomen. The skin and fat have been incised and drawn apart and the fibres of the external oblique separated. This gives a wide exposure of the deeper layers of the abdominal wall. One can now determine by inspection and palpation the intra-abdominal conditions far better than was possible from the outside. This method of examining the abdomen I have not seen mentioned. Having confirmed the pre-operative diagnosis it is easy to decide whether to enter the abdomen high or low, close to or through the rectus sheath, or nearer to the iliac crest.

The muscular portion of the internal oblique is opened with forceps. This brings us to the transversalis fascia which is incised in line with the internal oblique. The fascia tends to contract, hence it is well to grasp its edges with forceps as appears in the illustration. In the subsequent closure care should be taken to suture the transversalis, since it is probably the best safeguard against hernia. The peritoneum may be opened in any direction desired. The oblique incision brings one directly into the right iliac fossa. If the appendix be "at home" it is easy to find and remove. Should it be hanging over the brim, flirting with the ovaries, or wholly within the pelvis, or located post-cecal, or should it be of the undescended variety, it is still comparatively easy to reach.

The lower end of the incision which lies over the pelvis may be lengthened if desired. In doing so no muscular fibres should be cut. The sheath of the rectus is entered and opened downward, pushing the muscle aside. Sometimes only the skin and fat incision need be made longer. Through the remaining layers of the abdominal wall a short transverse incision can be made for pelvic manipulation or a puncture done through which to introduce a drain. The same is essentially true of the upper end of the incision when one wishes to go higher in the abdomen, either for exploration or drainage.

The closure of an incision made after this manner is comparatively easy. But the great advantage is that it leaves the abdominal wall strong, even though two or three drains are employed as shown in the illustration. While one would rather have a hernia than a hearse follow his operations, he naturally prefers neither.

DRAINAGE.

I approach this part of the subject with some trepidation. First, because I am addressing an audience reputed for its conservatism as well as its wisdom; and second, because I stand in the presence of perhaps the greatest surgical authority in the world, who has kindly consented to discuss this paper.

There is no practice in surgery that is more firmly established than is drainage in septic cases. In fact drainage is the *sine qua non* in most instances. Before the coming of the abdominal surgeon, nature drained many of these patients by rupturing the abscess into the bowel. The septic pus lying against the intestine softened and weakened the tissues till finally the pressure caused them to yield and the pus would escape into the gut. Shortly afterward a pint or more of bloody pus would pass per rectum. When the doctor paid his next visit the patient would be sitting up in bed hallowing for something to eat. Thus nature cured the patient by drainage.

In the matter of drainage the peritoneum naturally played an important role. The first thing it does when invaded by infection is to pour forth an abundance of serum. It is easy enough to demonstrate the presence of peritoneal fluid by catheterizing the pelvis through the abdominal incision. A glass catheter gently slipped to the bottom of the cul-de-sac does no trauma nor is it likely to spread infection. It is not unusual to find the pelvis half full to running over with serum within twelve to twenty-four hours of the initial symptom. The fluid found varies from a light straw-colored serum to one of greater or less turbidity. It often resembles

pus due to the superabundance of white blood cells. The peritoneal fluid is the patient's first line of defense, zealously trying to prevent systemic invasion. To mop it out or drain it away is to rob the patient of his best protection. The earlier operators lost many of these patients because they not only drained but washed out the abdomen with large quantities of salt solution. It is perhaps fortunate that only a small portion of peritoneal fluid will escape through drains. Indeed many surgeons go so far as to say the peritoneum can not be drained for more than a few hours at the farthest, since the rapid formation of adhesions precludes the possibility of long continued drainage. Speaking of adhesions, what an irreparable injury the surgeon does his patient whose abdomen he drains without sufficient cause!

But let us turn for a moment to those cases which all agree should be drained. In what way does drainage benefit the patient. The answer is two-fold. First, it removes at once the excess of septic fluid. The second benefit is quite as important; namely, it disturbs the pathological equilibrium. The incision plus the escape of septic fluid relieves the tension and starts the lymphatic current outward rather than toward the diaphragm, while intra-abdominal pressure promotes exosmosis. The peritoneum is thereby given the opportunity to dilute and absorb more slowly the infection lodged in its innumerable recesses. The result is that the patient is not overwhelmed by the toxins. How else can you explain the recovery in those fulminate cases which are cured by simply making a button-hole incision and sticking in a small drain.

Nor is this all the peritoneum does. Secondary abscesses, which so often occur nothwithstanding the abdomen has been drained after the most approved fashion, are evidence that the peritoneum continues to safeguard the patient. Such an abscess means that the peritoneum failing to absorb all of the infection rallies its resources and circumscribes the resulting pus by the formation of adhesions. In other words,

the peritoneum does most of the work while the surgeon gets the credit for it.

A careful study of the subject forces us to the conclusion that while in the vast majority of instances drainage should be employed, yet under certain circumstances the peritoneum is far more able to cope with infection alone, and should not be handicapped by the presence of a foreign body in the shape of a drain.

Were you to ask me the dividing line between drainage and non-drainage cases, I would have to confess that the distinction is not yet clearly defined. I know this: I have drained my patients that I am now convinced need not have been drained; I have omitted drainage in only two and later regretted it. My records show twenty-nine patients having acute appendicitis with more or less peritonitis and fluid in their abdomen in whom no drainage was employed, and all made a perfect recovery. While writing this paper I operated upon a young man whose pelvis was full of creamy-looking serum. The abdomen was closed and he made a normal recovery. The same is true of a young lady with her pelvis and lower abdomen full of straw-colored serum. A patient not drained recovers much more smoothly than when drained.

I recognize that this practice is debatable ground. It is the advance firing line of abdominal surgery. In the solution of the problem the clinical surgeon and pathologist must work hand in hand. My own observations are being checked up by the laboratory findings.

The propriety of draining having been determined upon, the next question is as to the material that should be employed. I have practically abandoned everything else for soft rubber tubing with or without a wick and the so-called cigarette. In wide open wounds gauze is sometimes placed superficially. When it is necessary to pack a bleeding point, gauze may be used to advantage. That portion of the gauze above the bleeding area should be surrounded with rubber tissue, which renders it easier to remove.

In placing drains several essentials should be borne in mind. First, the drain should reach the most dependent portion of the infected area, whether it be the cul-de-sac, the kidney pouch or elsewhere. Secondary abscesses are often best treated by draining per vaginam, occasionally per rectum. When placed in these latter situations gravity aids capillarity. I recently drained such an abscess through the vagina, occurring in a lady eighty-two years of age. Second, it is imperative that drains do not rest against blood vessels. The same is true to a less degree of the bladder and intestines. I lost a patient in my earlier experience from hemorrhage of the iliac vessels due to pressure necrosis caused by the drain. Hemorrhage from the deep epigastrics is often attributable to the same cause. The third item is to begin removing the drains early, usually at the first dressing on the day following the operation. It is good practice to gently loosen the drain and clip off an inch or two daily. The more drains one uses the sooner some of them should be removed.

RESUME.

With the exception of the wider utilization of the oblique incision, the method of checking up the diagnosis after partially opening the abdominal wall, and not draining certain cases, there is nothing especially new in the suggestions herein offered. Their value consists largely in the fact that they have been systematically tried out through many years of handling a rather large number of cases of appendicitis with peritonitis; they therefore carry the endorsement of experience.

Tuesday afternoon, 2.30 o'clock. Odd Fellows Hall. Section on Surgery. Dr. J. Wasley Long Chm., Greensboro, N. C. No. I "The Treatment of Acute Appendicitis with Peritonitis." This paper is my exhibit No. I. Discussion opened by Dr. W. J. Mayo, Rochester, Minn., which was as follows:

Mr. President:

Dr. Long, in his excellent paper, has placed the emphasis at exactly the right point. It is not the appendix of itself which causes the great mortality, but the peritonitis which is set up by the infected appendix that is responsible. The confusion which has arisen and which at times has introduced bitter controversies between members of the profession has been due to the failure to make a clear distinction between these two conditions; the one, speaking of appendicitis, the other, discussing the question of the peritonitis, which is the result of the appendicitis. Dr. Ochsner introduced the so-called starvation method of treating appendicitis and especially peritonitis. The principles that he enunciated were of the greatest possible value and have now been pretty generally accepted, but this has not meant that these patients should not be operated upon. On the contrary, it means that, as soon as proper conditions can be established, we must operate upon every case of appendicitis in order to prevent that complication—peritonitis—which Dr. Long so justly emphasizes. The treatment of peritonitis, no matter what its cause, is one which requires most excellent judgment and wide experience.

Drainage was considered for a long time the *sine qua non* of the treatment of peritonitis. Today we know that the milky fluid which appears in the earlier stages is a defense manifestation and the patient does better if this is not drained away, as Dr. Long has shown in the splendid results obtained since he stopped drainage in this condition; and yet it takes a surgeon of great acumen to know when the stage of defense has passed, when leucocytes have become pus, and the fluid is infected so that drainage becomes necessary.

SCIENTIFIC RESEARCHES INTO THE CAUSES OF ALCOHOLISM AND INEBRIETY.

BY T. D. CROTHERS, M.D.,
Hartford, Conn.

One great fact has been established by accurate laboratory and clinical research, viz., that the physiological action of alcohol on the cell and tissue is that of an anesthetic and depressant, and not a tonic or stimulant. This has been accepted by the profession generally, and while it revolutionizes the previous theories, explains in some degree why alcohol is so fascinating.

Beyond this, there is a vast range of causes producing alcoholism and inebriety that are practically unknown. All remedial and restorative efforts are based on the theory that alcohol is the special and particular cause of all the degenerations which follow from its use.

Careful studies of individual cases show this to be untrue; also that in many instances alcohol is only a symptom. It may be a complicating drug intensifying unknown conditions that were latent before. It may be a specific poison localizing in certain organs. It is also cumulative, and associated with the most complex neuroses.

The causes that impel men to drink have never been studied scientifically. The literature up to the present is a confusing mass of theories and opinions unverified.

In this unknown region there are innumerable questions like the following: Why are certain periods of life more favorable for the outbreak of the craze for alcohol than others? Why does the desire to drink break out suddenly in diverse conditions, and then subside from causes inadequate to explain the change? What is the explanation of the exact periodicity of these drink excesses that are as certain as the rise and fall of the tide? What are the causes in surroundings and conditions of living that provoke these paroxysms? Why do men drink after injuries, diseases, shocks,

losses, disappointments, business reverses, and great successes in life? What degenerations are transmitted from the parents to the children that create susceptibility or immunity to the effects of alcohol? Why are some persons able to drink in so-called moderation for years, and why do others quickly become diseased and die? Why do some men drink in early life, then abstain, and in middle or later life turn to alcohol again and drink until death? Why are some persons susceptible to the contagion of surroundings and companions, while others are immune? What physical and psychical causes produce the drink craze?

These are some of the unknown causes and conditions which have never been studied with scientific exactness. One of the most prominent and widely accepted explanations is the so-called moral cause. Physical conditions are considered results and not causes.

A Research Foundation has recently been organized at Hartford, Conn., for the purpose of making an exact scientific study of these questions. It will be endowed and become a permanent work. Preliminary studies have already begun, and practicing physicians from all parts of the country are appealed to for the records and histories of cases which will be compiled and tabulated for the purpose of determining the laws which control and govern them.

This is the first scientific effort to take up the subjects of alcoholism and inebriety and determine the causes which produce them outside of alcohol. Science has shown that these conditions are governed by exact physical and psychical laws, which if known and understood would indicate the most practical means and measures of relief.

The Foundation will be practically a laboratory or clearing-house, where persons can come for examination, counsel, and advice. To a large class of persons who want something more than pledges, appeals or sanatorium treatment, this will open a new field of means and measures for relief that will be most welcome.

Correspondence is earnestly solicited from the profession.

Selected Articles

PROPHYLAXIS AND TREATMENT OF ARTERIOSCLEROSIS.*

BY EDWIN W. JAMES, M.D.,
Tacoma, Wash.

If we accept, as indeed we must, the statement that no measures will serve to remove calcareous deposits of fibrous tissue from the walls of blood-vessels, once degeneration has taken place, then prophylactic measures assume their proper perspective and demand recognition during a study of this subject. The whole question of preventive medicine is of absorbing interest and, while at first glance it does not seem to have to do largely with arteriosclerosis, who shall say how far-reaching the effects of blotting out preventable diseases may be upon the incidence of arterial changes. For is it not true that typhoid fever, diphtheria, influenza and other infections are prominent causes? And, if inflammatory rheumatism be a common cause, may we not acknowledge our indebtedness to specialized surgery for preventing in a large measure "rheumatism", and so arteriosclerosis, by removal of diseased tonsils? We believe that the coming generation will, in this respect, as in many other more spectacular ways, reap benefit from the well-directed efforts of our public health workers.

Arteriosclerosis is not a disease entity, but a syndrome, a result. It is apoplexy in its possibility, and Brights disease in its incipiency. It is many times as common now as it was a half-century ago and, in spite of the gradual withdrawal of infectious diseases from among the causes, its frequency

*Read before the Twenty-seventh Annual Meeting of Washington State Medical Association, Seattle, Wash., July 12-14, 1916.

will increase unless prophylaxis be given the attention it deserves. The rapid pace we travel, calling as it does for absence rather than presence of physical effort, is telling on this nation, as witness the forced withdrawal from fields of great usefulness of many prematurely broken men. The ancient Romans, as their star came into its ascendency, were ardent athletes, all able-bodied men, especially soldiers, being participants in games and sports. It is told of the most notable warriors of that time that they never missed a day in carrying out their exercises, and were able to successfully contend with any member of their troups. And away back in Roman history we find the decline of athletes coming at the same time as the increase of luxury, athletics being then abandoned to the class of professionals, and finally being taken up by paid combatants or gladiators so familiar in literature. Here in America there seems to be a very large class of men who are consuming the food of athletes and taking their exercise by proxy. The massing of humanity into cities, the short distances necessary to go to transact business and the easy means of transportation for either short or long distances are among the things that have to be considered. Time was when it was considered genteel to walk or ride a horse, while now the effort of holding a steering wheel or changing a tire is something to be guarded against.

Prophylaxis, when to begin. If we attempt to prevent arteriosclerosis at the time when the best results may with confidence be expected, we shall look to the care and education of our youths and maidens. A system of athletics which relegates the exercise and sport to a chosen few will not produce a high degree of physical perfection in the mass of students. Wearing a chysanthemum to a Thanksgiving day football game never equalized a young man's circulation, although cheering may increase his air-space. However, we have not been aware of any deficiency of air-space in Young America.

All young people should be trained in systematic exercise and sports, for two reasons: First, to develop a strong and healthy body, which will resist invasions of pathogenic organisms, by having the right sort of blood, and blood-vessels; second, they should receive this training in order that they may acquire a taste for out-door sports. It is just as important that a man or woman should know how to play as to know how to work. We have had several cases of beginning arterial change with symptoms, when proper living, with some relaxation, would have prevented further development of the trouble and spared the man to years of continued usefulness, but he did not know how to play. He could not relax, and he had no taste for recreation. That we found to be one of the great difficulties in handling these cases. It is hard to teach a man or woman past middle life to play. So, I repeat, we must see to it that our young people acquire a taste for those things which they will need to do in more advanced years.

Without wishing to introduce any discussion of political policy, but strictly from scientific reasons, we would urge compulsory military training in our public schools and colleges. The physical exercises and the taste of camp life tend toward bodily vigor, mental acumen and a fondness for out-door life.

It is, however, in connection with middle age that the prevention of arterial changes is most often considered, and at this time of life we find the greatest degree of bodily insult and abuse. Among the well-to-do there is a growing disposition to consult a physician at more or less regular intervals for a physical examination. This is as it should be, and must be encouraged in every way. The doctor who at these examinations fails to go carefully into the habits and mode of life of his patient is derelict in his duty. One should correct errors of living just as surely as errors of digestion or vision, and charge a fee for so doing, for it is a service of even greater value.

We shall do much to prevent arteriosclerosis by, in no uncertain terms, advising these patients of a proper diet and a necessary amount of exercise. Here in the West, where there is so much of God's out-of-doors, people get away for the right kind of outings more than in the East. Not always, however, the people who most need it. We have seen patients presenting distressing symptoms, whose table was too generous and whose exercise was neglected, who have made spectacular recoveries, not under internal medication, but from regular gymnasium work. Golf or other not too vigorous out-door exercise has helped others equally as much. At the same time their intake of food was curtailed. These were cases of Huchard's "preclerosis" or Von Basch's "latent arteriosclerosis." There is a wonderful field for education in the matter of eating. Witness the lunches which we see consumed at any of our clubs or hotels by men who will ride away to their offices and remain physically inactive the remainder of the day.

Alcohol and tobacco should be reduced, if used to excess, or entirely cut off. It is our opinion, however, that there is far greater harm from the intemperate use of food than from the temperate use of alcohol or tobacco.

Infected tonsils as well as all other foci of infection should be removed, even in the later years of life, as they should in the prophylaxis of many diseases. Acute infections are becoming less common but should be further guarded against, for they all leave their marks in the arteries, even of young children. Syphilis must be cured before patients are allowed to discontinue treatment. Many cases of atheroma will in this way be prevented. Happily the later antisyphilitic remedies are very great aids in the cure of the disease, and later laboratory methods make known indications for specific treatment or its discontinuance.

The treatment of arteriosclerosis seems to have been enveloped in something of a haze, which no doubt is due to an endeavor to keep away from symptomatic treatment and empirical practice, both of which have a decided place. Fur-

thermore, it is impossible to be at all comprehensive in a study of treatment without some fairly well defined classification of cases. Sir Clifford Allbut has offered the following suggestion which has been accepted by Sir William Osler and others.

(1) Arteriosclerosis, being the effect of persistently high blood-pressure, Allbut's hyperpiesia, Huchard's preclerosis.

(2) Arteriosclerosis of toxic origin from poisons or disease.

(3) Arteriosclerosis of advancing age, the result of involuntary changes, termed by Allbut, decrescent.

It is in the case of hyperpiesia that treatment offers the greatest encouragement, it being possible many times to achieve recovery. Recovery not by removing deposits from the arteries, but in those fairly early cases, by relieving the conditions which later will cause degenerative changes. There may be more or less serious symptoms causing patients to seek advice, or the condition of hyperpiesia may be recognized at the time of insurance examination or when prescribing for some concurrent ailment.

The treatment of hyperpiesia will depend upon the condition of the patient at the time of observation and the exciting cause. The success or failure of treatment will depend not only upon the time at which treatment is begun but upon the co-operation we receive from the patient and his family. There is probably no condition in which a clear conception of psychology is of greater assistance than here. Discipline is an essential and suggestion an aid. Sometimes, perhaps, we err in disregarding the fact that there are two kinds of suggestion, positive and negative. We give the one intentionally and hopefully. Our patient acquires the other, if we are not on our guard, from our actions, facial expression and nature of our advice. The layman nowadays is pretty well posted in blood-pressure, hardening of the arteries, threatened apoplexy, etc. (or let us say he thinks he is), and it is very easy to launch him on a debauch of sordid self-examination and introspection, by awakening apprehensions

through too great diligence in examinations and the imposing of too many restrictions.

Have we not sufficient evidence that blood-pressure is raised by worry and nervousness? We have seen a man of fair robustness reduced to semi-invalidism by being told daily for a short time of his blood-pressure which registered about 200. Just as an X-ray plate in the hands of a patient may be a source of great concern, so the knowledge of his blood pressure may be a source of great worry. Both should be kept in the physician's hands. Blood-pressure should not be taken more frequently than the exigencies of a case demand.

A very bad effect will also usually follow the advice to a patient who is still fairly active that he stop all work and responsibility in connection with his business. The reaction will be worse than the continuance in more or less moderation. However, restrictions must be placed and modes of life changed but the very radical changes can be brought about gradually in the mild cases. Having inspired a patient with confidence, instead of apprehension, we are in position to outline treatment for him with fair prospects of success.

Hyperpiesia of children is usually from gastro-intestinal disorders and restriction of diet, followed by the administration of mercury, proves sufficient ordinarily. In treating hyperpiesia of adults the first consideration is that of diet and exercise. We say diet and exercise, believing it impossible to consider either separately. Most men are burning too rich a mixture. Food values must be reduced to terms of muscular exertion. If these people who are so fond of eating would take sufficient exercise to burn up the fuel, the unfortunate results would not follow. And so, while the question of diet is the most important, it must be handled with due consideration to exercise. We believe it is far better to insist on exercise up to the point of safety, with a less restricted diet, than to tolerate inactivity on the low diet.

The exercises which should be prescribed for a man of fifty, with a systolic blood-pressure of say 160 and diastolic 90, whose heart is slightly enlarged to the left, and who has no symptoms of myocardial insufficiency but is in fairly good condition otherwise, would be those which do not require any sudden or violent exertion. Golf, horse-back riding, walking and graded hill climbing. The English use hill climbing for its therapeutic value much more than we do, and it has been dubbed by them "the terrain cure for rising blood-pressure." Hill climbing should be undertaken gradually at first, for during the first few minutes both systolic and diastolic pressure rise. Then comes one's "second-wind," due to an increase in the lumen of the arteries and consequent relief of the circulation. Exercise is of value in even more advanced cases after the heart has regained compensation.

The question of diet presents many difficulties. It must be reduced to meet necessary requirements, which usually means deprivation to the patient who, during middle age and inactivity, has been eating about the same as he was at the age of strenuous youth. Reduction to about one-half often gives splendid results. It is generally not necessary to adopt an exclusive diet, rather can we expect better results from a temperate amount of a general diet, at the same time avoiding what we might term the notoriously harmful foods. Meat only in small amounts two or three times a week, no hot cakes or hot breads; no fried food, no pastry, no highly seasoned food and little salt. Much has been written about purin-free diets but clinically we have found no advantage in it. While Brault states that, inasmuch as atheroma is found in the herbivora a vegetable diet is dangerous. Huchard says that meat is a poison to the hyperpietic.

The intake of fluids should be reduced in some cases. Much harm is being done nowadays by the advertisements in the press, urging the universal drinking of large amounts of water, always, of course, adding some patent medicine in the guise of a harmless cure. In this way they say we may

"wash out the system" or take an "internal bath." Any excess in the use of alcoholic drinks or tobacco should be foresworn. Life for these patients must be made to run smoothly, avoiding as much as possible mental excitement and worry, while not going to the extreme of forbidding all endeavor and responsibility.

The only electrical treatment which seems to be of value is the high frequency current. One thousand milliamperes should be given for fifteen to twenty minutes. The systolic pressure is often reduced noticeably and remains down for from several hours to two or three days. It is a measure of some usefulness in cases in which high pressure is the cardinal symptom, particularly in nervous people. It acts as a nerve sedative and probably reduces peripheral resistance. Some have claimed that its only good effect is through suggestion. Granting that it is a help in this way, there seems to be plenty of evidence that it does more.

In more advanced cases, with failure of cardiac compensation as evidenced by dyspnea, edema, and a murmur at the base of the heart, the treatment becomes more active. Such patients must have rest in bed until the heart is able to regain its muscular tone. Digitalis here becomes our drug of choice, administered now as digipuratum. In case the situation is threatening, it is best given intravenously, one dose of one and one-half grains, repeated in twenty-four hours if necessary. Ordinarily, however, it may be given by mouth, one and one-half grains three times a day for three days, then one-half the dose. We have given this latter dose continuously for months, with only occasional periods of two or three days without it, with no untoward effect, but on the contrary continued improvement.

If there be much edema and rest, diet, cathartics and digitalis do not give relief, we have tried apocynum cannabinum with quite remarkable results in some cases. A fresh tincture is procured and fifteen drops given three times a day, increasing one drop to each dose a day until therapeutic

limit is reached. The mechanical removal of fluid may be necessary. Such indeed is indicated if there be anasarca.

Those cases of myocardial insufficiency due to the strain of hypertension with, perhaps, coronary sclerosis, offer a great deal of encouragement from treatment. These patients have kidney involvement but it is secondary. Primary kidney cases do not respond so well to treatment.

Vasodilators are sometimes of value in reducing high pressure. To be sure, it is symptomatic treatment, but why not? A vicious circle may be broken by improvement of a symptom. The nitrites may be used for relief of high pressures, not, however, if the heart shows signs of yielding. If used, it should be in increasing doses and with watchfulness. An occasional course of calomel or blue mass is usually indicated. The use of iodides in other than syphilitic cases is used empirically and with good effect, its favorable action probably being due to a decrease in the viscosity of the blood. This latter is also effected by the use of mineral waters, baths, and purgatives.

Venesection is a remedy very useful in two ways; first, as a part of our treatment in cases of hyperpiesia in robust, plethoric individuals, even in the absence of an emergency; second, as a relief in a crisis. We have used it in both classes to our satisfaction generally. When used to relieve the ordinary symptoms of high pressure in properly selected cases, it is resorted to about twice a year. Following the withdrawal of a pint to a pint and one-half of blood, the patient experiences considerable relief. The blood-pressure drops and may remain at a lower level for several months. It is gratifying to have a patient return in, say, six months for another venesection with the voluntary statement that she has been so much better but feels that it is time to repeat it. Patients who have experienced this relief look forward to the treatment with confidence. In crises like threatening cerebral hemorrhage the results of blood-letting are very encouraging. In choosing cases for venesection we should have clearly before us the classification of arteriosclerosis,

for, while it is a measure of considerable value in the hyperpietic form, it is scarcely applicable to the decrescent cases. In fact, the results in the latter class might be disastrous, as also in cases anemic from chronic nephritis.

In toxic arteriosclerosis the blood-pressure is not raised, so depressor remedies are not needed. The treatment is that of the particular poison or infection concerned. Syphilis is the most common infection and a discussion of its treatment could not be undertaken in a paper of this scope. With the present improved remedies at hand and the improved laboratory methods of accuracy in diagnosis, cases of syphilis will generally be cured before sclerosed or atheromatous blood-vessels require treatment. For the toxic forms we may say that rest, massage, baths, diuretics and cathartics will be the remedies used.

We have tried to show that much can be accomplished in the treatment of arteriosclerosis due to hyperpiesia by treating the high blood-pressure to which it owes its origin. Unfortunately, in decrescent arteriosclerosis we can not anticipat any such fortunate results of treatment. It is to this form we refer when we say "a man is as old as his arteries" and, as we can not subtract years from his age, we can not extract calcareous deposits from his arteries. We may watch and wait, lending a hand here and there, but the result is inevitable. We dare not interfere with a moderate rise of blood-pressure, for it is compensatory. The arteries are less resilient and there is more friction, consequently the heart's action increases in force to overcome the odds.

Just a word in regard to indications for treatment, furnished by blood-pressure readings. Diastolic as well as systolic blood-pressure should be taken and the pulse pressure estimated. The probabilities of loss of cardiac compensa- the increase in pulse-pressure.

Consequently, a high pulse-pressure is a contraindication for the use of depressant measures. On the other hand, it is a positive indication for guarding the heart muscle and the use of a drug of the digitalis group. In high

blood-pressure cases, if the pulse-pressure be low, that is, if the diastolic pressure be comparatively high, cerebral hemorrhage is to be feared and sudden muscular effort might be fatal. Depressants or venesection in such cases may be indicated, although all measures for immediately lowering blood-pressure should be used very guardedly. It is a grave error to assume that every high blood-pressure (systolic) should be promptly reduced. They are frequently compensatory and disastrous results may follow this reduction.—*Northwest Medicine.*

ADMINISTRATION OF DIPHTHERIA ANTITOXIN—SAFETY FIRST.

BY LOUIS WEISS, M.D.

The use of the hypodermic needle is an important procedure. It should be prepared for and carried out with infinite care. The history should be ascertained. Did the patient have a hypodermic injection of antitoxin before? How long ago and how many times? What was the effect? Did the patient ever have any severe illness?

The present condition of the patient should be carefully noted. Is it a mild or severe case; a child or an adult; how long ill; and complications? Make a physical examination. The heart, in hypodermic therapy, is the most important organ to consider. The heart, through the pulse, is the key to the safe administration of antitoxin. What is the character of the pulse? Is it rapid, slow, irregular, weak? What is the blood pressure? Note the face, is it pale or florid? Are the extremities, hands, and feet, cold and clammy with perspiration, or hot and dry? What is the temperature—rectal preferred? What is the extent of the throat infection? Are the adjacent glands involved? Having ascertained all the information possible, one is prepared for more efficient service.

The administration of antitoxin should always be made with the patient in the recumbent position. At any age, position is important. The work of the heart is light with the body level. It is the position of rest for the heart as well as the body. As long as the heart does not have to pump the blood against gravity, it is at its maximum strength. With a strong heart bodily resistance is enhanced.

In the case of a combative child, have it held, so that your own hands are free. You may use the subcutaneous, the intramuscular, or the intravenous route. The essentials of the technic are the same in all. Personally I use the subcutaneous route. It is especially suitable in children and the obese. I most frequently use the abdominal subcutaneous tissues as the site for antitoxin injection in children. Other sites are probably equally as good. In the adult the arm is most frequently used. Cleanse the part selected with ordinary hand soap, or tincture green soap or lysol in solution, and paint with tincture iodine. Cleanse your own hands every time. The antitoxin outfit comes to you sterilized. Pinching up the skin, introduce the needle through the iodine-stained area. With the syringe in one hand ready for action, watch the pulse with the fingers of the other hand. In the case of children, if the pulse is difficult to get, use the stethoscope on the heart. Inject drop-by-drop, slowly and carefully. Watch the heart through the pulse, or directly by means of the stethoscope. Is it the same or better, or worse? If the same or better, continue the injection until finished. If worse, remove the needle at once, regardless of the amount previously determined upon for injection. What constitutes worse? Any further tendency from the normal. The pulse may suddenly increase in rapidity or may become excessively slow, irregular or dicrotic. The pulse shows on the first sign of danger. Detection is easy if looked for. If the pulse is overlooked and the injection continued, other symptoms follow. There is a temporary stoppage of respiration and a blank stare, an anemic, shrunken face, beads of cold perspiration on the forehead, dropping of the arms, and head

to one side, and collapse with the patient at your feet unconscious. What physician has not gone through one or more such frightful never-to-be-forgotten moments? Such an experience need never be repeated if the slow, careful, watchful, drop-by-drop method is cautiously followed, and the patient placed in the recumbent position. The studied method is the truly scientific one, and not the rapid, hit or miss, want-to-be-through-with method.

With this method, patients do not complain of the severe pain, as with the old method.

The occasional necrosis at the site of injection with the rapid method, is a thing of the past with the slow method. No swelling is produced because the fluid is injectly slowly. The usual rapid injection compels the subcutaneous tissues to admit the fluid under pressure. There results a forceful separation of cells, a squeezing, a tearing, a pushing of structures. Such an onslaught has a tendency to cause tissues to become pathologic, as manifested by swelling, redness, pain, extreme tenderness, and sometimes ending in necrosis.

The slow injection permits the tissues to accommodate themselves to the invader. There is no harm done to the structures. The slow injection has a physiologic effect which is desirable. Every drop is taken care of separately. It is easy for the parts to withstand the invasion of one drop at a time. The rapid introduction of a large amount of fluid overwhelms the receiving elements, and instead of being a help, it becomes a menace in already weakened individuals, in whom the antibodies may be a negative constituent.

Look for effect *immediately* with the very first drop entering the system. It is not generally acknowledged that every drop makes an impression on the system. We do not usually consider the fluid, only the bacteria, so many millions per c.c. It is believed that the millions of antitoxins introduced are the principal destroyers of the toxins in the patient's blood. We have counted the antitoxins from outside the body; we know their number; but who will ever know how

many antitoxins are at work, or ready to be set free for an attack on the toxins in the body?

It is a fact, established beyond all doubt, however, that antitoxin injected through the skin is of immeasurable value in diphtheria. But do we know in what way this benefit is conferred? My belief is, that the antitoxin fluid injected into the system acts as a stimulant. It stimulates the *body's antitoxins,* and *they* are the real curative agents.

In the comparatively robust, who are filled with antitoxins, there is usually a favorable response to the outside stimulation. But the introduction of anti-toxins into a body devoid of its own antibodies, is sometimes a failure. Not only does the system fail to respond, but serious consequences may follow over-stimulation. Over-stimulation is not alone detrimental to the weak and sick, but likewise to the seemingly well, with an anaphylactic or hypodermic idiosyncrasy.

Every physician is undoubtedly familiar with cases, who apparently were in good health, and when given an immunizing dose, which is usually smaller than the therapeutic dose of diphtheria antitoxin, were made ill. Some recovered with considerable difficulty; others lost their previous robustness, while some even died.

These deaths are usually ascribed to a weak heart which was never before manifest. It is a poor way to bring out a latent weakness of the heart. At any rate it is a fact, that the heart is easily affected by a hypodermic injection of diphtheria antitoxin.

Let me here note that injections with vaccines thus far have been comparatively safe. We do not hear of anaphylaxis following vaccine injections. We may hear of a negative phase occasionally, which means a slight unfavorable reaction which passes off usually in from a few hours to a day or two. Why this difference? Because vaccines are used in small amounts at a time, from a few drops to one c.c., seldom more. And used slowly, carefully, with an eye to the negative phase. The element of danger in the case of vaccines is never lost sight of. That should also obtain with

injections of diphtheria antitoxin. The vaccine injections are graded. They are increased only as toleration for them in the patient is established.

Most of us believe that vaccines play an important role in the cure of patients, and yet the benefits are brought about by small amounts. Vaccine therapy shows that every drop has its effect upon the system. This argues well for the concentration of as many bacteria as desired in the drop of fluid for therapeutic purposes. As a matter of fact, there has been obtainable for some time a concentrated diphtheria antitoxin. I believe this is the diphtheria antitoxin of the future. It is safer for the patient, and is equally efficient to the bulky antitoxin, usually 10 c.c., mostly serum. With the elimination of at least nine-tenths of the serum will go the dreaded serum sickness and other untoward effects, and mortality will be still further reduced.

The effect of the hypodermic injection, as was pointed out, is *immediate,* at the very start of the injection. It is not a case of mere absorption, however. The body is not a sponge. Immediately on the introduction of the first drop of antitoxin, the body acts as if it were electrified—that is, unconsciously. The histolic elements of the body experience a change.

The injection creates in the organism a process by means of which abnormal states tend to become normal.

The effect being immediate, the system at once responds acording to its ability to tolerate the injection. That is determined, as noted above, first by watching the heart through the pulse. If the pulse is unaltered or improves, the power of resistance to disease is sufficient. That is, the patient is capable of overcoming the disease by his or her own antitoxins. Here we have a case which requires little if any outside stimulation. At any rate it is a safe case for the administration of diphtheria antitoxin.

If the pulse becomes worse, it is a sign that the patient's power to resist disease is low. This kind of a case is hazardous and requires extreme caution in introducing antitoxin

into the system, although apparently antitoxin is urgently indicated.

This method gives us immediately knowledge as to the condition of the patient in hand, and indicates the probable prognosis of the case. By this method also we may safely determine at once, by proper interpretation of the effect of the injection, the degree of immunity to diphtheria present in a person exposed to the disease.

Whether diphtheria antitoxin is injected as an immunizing dose or therapeutically, whether early or late in disease, in a mild or severe case, in a child or an adult, once or repeatedly, this method is both sane and safe.—*Medical Review of Reviews.*

Extracts from Home and Foreign Journals

SURGICAL

A Simple Device for Locating Foreign Bodies in Fingers.

Location in a busy clothing manufacturing district gave rise to the necessity for a simple method of determining the presence and location of foreign bodies, such as needles and splinters, in fingers. A piece of black woolen cloth 8 inches square was fastened to a piece of adhesive plaster of equal size, and in the center an oval opening was made measuring five-eights by one-half inch. By placing this over an electric light suplied with a reflector and placing the finger over the hole, excellent transillumination is obtained, and by making pressure with a pointed instrument over the suspected area, the object can be brought out more clearly. If the field is rendered bloodless while operating, the finger may be placed over the opening and the object can be again accurately located. This device is simple, inexpensive and indestructible. It is more easily adapted than pocket flashlights, etc., to the finger, and reduces to a minimum the number of cases requiring roentgenograms. Daily use for the past six months by several workers in the accident room has proved its efficiency.—*The Journal of The American Medical Association.*

Cholecystectomy.

Surgical opinion as to certain points in regard to cholecystectomy has been collected by Donald Guthrie, Sayre, Pa. (Journal A. M. A., August 26, 1916). Letters were sent out to forty-five esperienced abdominal surgeons asking for the percentage of recurrences following the operation, the rela-

tive frequency now and in the past of its performance by them, and the results as compared with those treated by simple drainage; also in what cases they considered cholecystectomy the operation of choice and what its contraindications; as a rule, how they treated empyema of the gall-bladder, and how the mortality of cholecystectomy compares with that of cholecystostomy in their work. The details of the answers received are given, and Guthrie finds that their reports altogether show that recurrences happen in 9.5 per cent of cholecystostomy, while the percentage following cholecystectomy was not learned, but is certainly small. Cholecystectomy is done much more frequently than in the past, and is a better operation; but it is attended with more operative difficulties and more danger than simple drainings. The gall-bladder should be removed when its wall is diseased or the patency of the cystic duct is in question, provided the patient's condition allows.—*Northwest Medicine.*

Magnesium Sulphate Lotion in Cellulitis.

In the *British Medical Journal* of April 1, 1916, Morison writes that Lieut. S. A. B. Paymaster has drawn attention to the above in the *British Medical Journal* of March 11th. His findings corroborate those published by Dr. Tulloch and himself on the treatment of all septic wounds by this salt. The treatment of erysipelas by magnesium sulphate is of very old standing, and is mentioned in several text-books on surgery published before the dawn of the Listerian era of antiseptic surgery. It was, of course, at that time used empirically; now we know as a result of the researches of Dr. Tulloch that its action is due not only to its hypertonic action on the tissues, but to the power it possesses of inhibiting the growth of streptococci and most of the granulated-negative forms of bacilli found in wounds. He would, however, suggest that the effect of the treatment is very much hastened and more efficacious, and the change of dressing is less frequently required, if a saturated solution of magne-

sium sulphate with 10 per cent glycerin is employed. This he has found by numerous experiments gives the best results in septic wounds and infective conditions.—*The Therapeutic Gazette.*

Surgical Treatment of Acute Epididymitis.

Dr. C. M. McKenna (*Urolog. and Cutan.* Rev., June, 1916) says that surgical procedure is necessary only when the patient is suffering excruciating pain. When this procedure is carried out, it is quite necessary to divide the fasciæ so as to free the tension from the testicle as well as the epididymis. Patients are less apt to be impotent if the posterior wall is divided carefully and the pus drained off than if it is left to nature to absorb. A blind stab operation is that of a faker and should not be considered. It is not enough to expose the epididymis and drain it, but all the fasciæ should be free. It is not necessary to split the entire epididymis, but only the infected chamber, which stands out clearly.—*International Journal of Surgery.*

MEDICAL

The Suprarenals and the Thyroids.

Suggestions of possible interrelations among the ductless glands have not been lacking in recent years. Various functional changes in the body have been explained by assumptions of more or less complex pluriglandular activities resulting in the promotion or the retardation of the performance in question in accord with the relative participation of the different endocrine structures concerned in the hypotheses. Attention was recently directed to the accumulated evidence pointing toward a definite influence of sympathetic impulses over thyroid activity. It is known that the internal secretion of the suprarenal glands, or epinephrin, will have

the same effect in the body as sypathetic impulses. . Cannon and Cattell have recently demonstrated that injection of a small dose of epinephrin evokes a marked action current in the thyroid gland. This is taken by them, in harmony with observations on the behavior of glands when tested by the electrical method, as a sign of glandular functioning. Stimulation of the nerve to the suprarenal gland so as to cause its secretion to be poured forth into the blood stream will also evoke a characteristic electrical change in the thyroid. This electrical change does not occur if the return of blood from the abdomen is prevented, but takes place promptly when the pent blood is released. Furthermore, it fails to appear after stimulation of the nerves if the suprarenal glands have been removed previously. An influence of suprarenal secretion on thyroid activity seems thus to be definitely established. Cannon and Cattell point out that apparently the amount of suprarenal secretion liberated by the splanchnic stimulation is sufficient to excite the thyroid gland in a manner similar to its excitation by sympathetic impulses and by epinephrin injections. They add that obviously the efficiency of sympathetic impulses in provoking activity of the thyroid might be greatly augmented by the simultaneous secretion of the suprarenal glands. It is regarded as significant that both the thyroids and the suprarenals would be stimulated stimultaneously by the diffusely stimulated pulses of sympathetic neurons. Attention has been called to the emergency function of the suprarenal glands in times of emotional stress, as distinguished from a purely routine function. There is doubtless what may be called a routine performance of the thyroid which serves to keep metabolism normal in some of its aspects. But because this gland is subject to sympathetic impulses and because it is now demonstrated to respond to such stimulation with great promptness, Cannon ventures the belief that it also has an emergency function—one that is exercised particularly in emotional crises. That this behavior is an exaggerated form of the routine activity of the gland is at present,

of course, purely a speculation.—*The Journal of the American Medical Association.*

The Use of Emetine.

Alfred C. Reed presents the salient features of the history, pharmacology, toxicology, and use of emetine, and, in summarizing, states that in so far as emetine has a beneficial action in tuberculosis, it would seem to be due to its expectorant properties, and if so, other preparations are preferable. In so far as emetine has a beneficial action in hemorrhage, it would seem to be due to the indirect result of decreasing the blood pressure, and if so, other drugs would be more effective, in that they would produce a similar result more safely and without the specific action of emetine on coagulation. Levy and Rountree make the suggestion which can hardly be taken seriously from the clinical point of view, that emetine enemata would serve a useful purpose in the treatment of constipation. Such enemata have an undoubted value when properly used for the sake of their amebicidal action, but their use as here suggested does not seem well advised. Emetine will hardly replace Leonard Rogers' hypertonic infusion in Asiatic cholera, and few of its other applications will bear the best of careful experimentation. Whether emetine alone will cure pyorrhea is an open question. It will, without doubt, cure the amebic infection, and to this end its use hypodermically and locally is indicated. But it can not be said that emetine is a specific for pyorrhea, or that pyorrhea can not be cured without it. This statement is also applicable to certain bony and oral abscesses and infections other than pyorrhea. Emetine has proved serviceable in the treatment of certain other diseases caused by animal parasites, especially protozoans, but its main action is on the ameba, for which it is a specific remady, provided the specific agent is not walled off in an abscess.—*Medical Record.*

Novocain Not Under Harrison Act.

Novocain, a synthetic chemical, was recently determined by a jury in a United States Court to be without the prohibitory provisions of the Harrison Anti-Narcotic Law in that it was not a derivative or compound of opium or cocoa leaves. It is a local anesthetic extensively used by physicians and dentists, and is imported and dispensed in the United States to professional men by the Farbwerke-Hoechst Company. Under a ruling of the Treasury Department that any synthetic substitute for cocaine was taxable under the Harrison Act, the Farbwerke-Hoechst Company paid, under protest, the tax to the Collector of Internal Revenue and brought action for the recovery of same, in order to demonstrate that novocain, holocain, orthoform, and anesthesin were not derivatives of cocoa leaves or opium, and contained no habit-forming drugs.—*New Orleans Med. and Surg. Jour.*

OBSTETRICAL

The Fallopian Tubes in Puerperal Fever.

Chassot has been making a special study of the part played by the tubes in the spread of the infectious process in nine cases of puerperal fever with necropsy. He cut sections at the isthmus, at the opening into the uterus, and at the farther end. The clinical course in each case is described and compared with the microscopic findings in the tubes. Nothing was found to indicate that the tubes have much to do with the spread of the infection. In only one case was there an old catarrhal infection that might possibly have been the cause of the uterine infection. In one other case there was pyosalpinx presumably secondary to the ulceration in the uterus. In three cases and in one tube in a fourth case the tubes were apparently entire normal. In the five others there was a slight, only microscopic catarrhal trouble. This nonin-

volvement of the tubes shows that pyosalpinx can not be referred to an old pregnancy as often as is generally assumed at present. We must remember also that the streptococci set up acute processes as a rule, while gonococci are more the agents of chronic catarrhal conditions.—*The Journal of the American Medical Association.*

Colloidal Silver and Puerperal Sepsis.

Willette sums up as follows: Colloidal therapy should be used intravenously in puerperal sepsis and may render great services. Aerobic infection (chiefly the streptococcus) is much more frequent and more amenable to colloidal therapy. Anaerobic and mixed infections require an oxidizing or mixed treatment. To attain success large dosage should be used—one should not fear possible ill consequences. Figures show that this treatment lowers the mortality, shortens the course of the disease and prevents a certain amount of complications. The rationale of the treatment is due chiefly to the entrance into the blood of matter in the colloidal state which behaves as an alterative, and brings about a crisis syndrome, with its temperature fall, leucocytosis, augmentation of urine.—*Medical Record.*

Bacterin Treatment of Eclampsia.

Lately I have used bacterin-therapy in puerperal eclampsia, with marked success. The baby was born at 12 midnight, and at 1 o'clock, just as I was leaving, I was called back and found the mother in convulsions. I gave veratrine hydrochloride, to slow the pulse, and repeated it in each attack, which came on every three hours. But, as they continued in to the second day, I became alarmed and gave her a mixed bacterin of 100,000,000 colon-bacillus and 50,000,- each of streptococcus, pneumococcus and straphylococcus au-

reus, albus and citreus. After the second injection, given twelve hours after the first, the convulsions ceased to appear. I do not know which did the work, but I presume the colon-bacillus was at the root of the evil.

This may be a hint worth trying, for at least it will do no harm. — N. W. D. Cox, Arlington, Mo., in the *American Journal of Clinical Medicine,* July, 1916.

Superfoetation.

A 12-para negress in 1900 stated that she had menstruated twice after she was sure she was pregnant. A seven-month male fœtus weighing 5 pounds and a nine-month fœtus apparently fully matured were delivered at one labor. Both were "raised" and are alive at present, with about 20 pounds difference in weight.—Onslow Regan, Alexander City, Ala., *Medical World,* August.

Editorial

PUBLISHER'S NOTICE—The Journal is published in monthly numbers of 48 pages at $1.00 a year, to be always paid in advance.

All bills for advertisements to be paid quarterly, after the first insertion of the quarter.

Business communications, remittances by mail, either by money order, draft, or registered letter, should be addressed to the Business manager, C. S. Briggs, M. D. corner Summer and Union Streets, Nashville, Tenn.

All communications for the Journal, books for review, exchanges, etc., should be addressed to the Editor.

HAY FEVER RESORTS.

My excuse for writing on so trite a subject is my wide range of experience and observation. Having suffered from hyperesthetic rhinitis for ten years, I have tried a number of resorts with varying results. Petosky was my first experience, and was good. The other Michigan resorts north of Petosky were also good. Muskoka Lake gave relief, but not that region between Detroit and Toronto. The Lake Superior region was good, especially the Nippigon country. Minnesota points was fair, but not Duluth. Lakes of the Woods were good and deserving of more visitors, yet rather inaccessible. Rochester, Minn., is not exempt, and some districts is felt all along the valley of the Red River of the north up to Winnipeg. The Rocky Mountain range and the Pacific Coast were exempt from the Mexican border to White Horse Pass in Alaska in my experience, and of course would have been to the Pole, had I gone that far. Traveling extensively in Europe, Asia, and Africa, and in Australia, Hawaiian Islands, and Samoan Islands, I felt no hay fever at all. I have felt the hyperesthetic rhinitis severely in some of the alkali deserts of the west of America. This season I determined to try the hay fever resorts of the South. Having heard of an old well-known hay fever resort at Roan Mountain, Tenn., I repaired there and found all claims substan-

tiated. Village three thousand feet elevation, mountain six thousand; old-fashioned comfortable place; also relief at near by-stations of Elk Park and Cranberry just over the North Carolina line. Asheville I found comfortable, but Waynesville, nearby, quite uncomfortable.

Reason, Asheville cuts out her weeds, Waynesville does not. Eagles Nest five miles distant afforded relief on account of its elevation, and Mt. Mitchell and Balsam. These points are all near Asheville. I found that on going further south the corn became worse and the cotton better, rag weeds scarcer, also hay fever.

I visited all the important seaside resorts along the coast of South Carolina, Georgia, and Florida. I not only found some of the most beautiful beaches I had ever seen, but also fine bathing and freedom from hay fever. Every seaport has an island out in front which is an ideal hay fever resort. A trip by boat into the everglades of Florida proved not only interesting, but also that they were free from hay fever. Crossing over to Cuba that was also found to be free from hay fever and Havana free from mosquitos, while Floridians are nearly eaten up with them. I have always found the tropics free from hay fever.

I hope to have given some people a change from the monotony of visiting the same resort year after year where others may find a place of relief nearer home and some northerners may find the delights of the Southern climate and people. I found that generally speaking five hundred miles from Cincinnati brought peace.

Health News.

What profiteth a man that he gain the whole world yet lose his health?

Naturalists say that long ago the prehistoric waters were infested with a species of enormous shark which finally became extinct by reason of the workings of its voracious appetite. Thus Nature eliminates the over-fed.

The desire for ease of life and plentiful diet is universal and is the great stimulus of man and animal alike. When man becomes greedy and takes more ease and food and drink than is his share, Nature discards him.

In the race for power and place, for ease of circumstance and relief from the stimulus of hunger, the modern man is apt to forget that unless he is careful of his body he will soon be made to suffer for the infraction of Nature's inexorable physical law. With the loss in body tone comes an equal loss in mental acuity and the brain which for a time was able to operate despite the complaints of an over-fed, under-exercised, self-poised body, stops working.

Statisticians have discovered that the mortality rate of persons in the United States over 45 years of age is increasing. The strenuous life of today is not alone responsible for this. Lack of health-giving exercise, superfluity of diet, lack of restoring sleep, over-stimulation, the high pressure of the race for power, wealth, and position, plus physical neglect—these bring early decay. The goal is reached—wealth is amassed—honor, position and power are just being grasped when the apple of accomplishment turns to the ashes of dissolution. The brilliant mind becomes clouded, the steady hand is no longer accurate, the eye which once gazed fearlessly on the whole world is dimmed and it is not long before the final break-up occurs. All of this was entirely preventable.

Other things being equal it is the man who leads the well-balanced life who lasts the longest, whose work to the end is uniformly the best, he who neither over-works nor over-plays, neither over-eats, over-drinks, nor over-sleeps, he who maintains a standard of simple healthy diet in moderation, who offsets mental work with physical recreation, who is as honest with his own body as he is with his own business. When success comes to such an one his physical and mental condition is such that he can enjoy in peace of mind and contentment of body the fruits of his labors.

The regulations of U. S. Public Health Service state: "It is the duty of officers to maintain their physical as well as their professional fitness. To this end they shall be allowed time for recreation and study whenever their official duties will permit." If the Government regards it as essential that its sanitary experts shall be safeguarded in this way, is it not equally important to every citizen that he similarly maintain a high standard of physical integrity?

Medical Care of the Native Alaskan.

The problem of caring for the natives of Alaska is among the most difficult matters which confront the government in its relations with the aboriginal tribes.

There is no central point in Alaska, Seattle being the trading centre of the Territory.

These people are scattered along a waterfront of more than 5,000 miles. They live in small villages. They are still influenced by the superstitions which have come down to them from the centuries. They hide, rather than seek relief for their ailments, believing that there is some divine retribution in misfortune.

Secretary Lane of the Interior Department, who personally knows every part of Alaska, has given tender consideration to the needs of the native Alaskan, and great improvement has taken place in the care of these people, especially during the past two years.

Syphilis and tuberculosis, here as elsewhere, have wrought sad havoc with the primitive people.

The editor of the *Medical Sentinel,* in a trip just completed in Alaska, was forcibly impressed by the special interest now being shown by the Government in the medical side of care for the natives.

At Juneau, Dr. Douglas Brown, a recent arrival, is in charge of a splendid native hospital just completed by the

Interior Department, which looks after fourteen nearby villages. Dr. Brown serves under the Educational Division of the Interior Department, is a civil service employe and was for some years with Col. Gorgas on the Panama Zone.

At Haines a special hospital is soon to be erected for tubercular cases, and soon a colony with every known equipment will be in operation.

In other portions of Alaska, seven or eight physicians have been put in charge of the medical Indian service, and three other small native hospitals are already maintained by the Government in the territory.

An attempt is now being made by Secretary Lane to employ teachers in the Educational Division, for stations where no doctors are located ,who are also trained nurses. These teachers have some special training for emergency medical work, are given a medical and surgical equipment of simple character, and provided with proper instructions for the service along medical lines. As fast as appropriations can be secured, district zones are being organized comprising a neighborhood of native villages, for which a general hospital and a competent physician is supplied.

The insane native has the benefit of care outside of Alaska, where, in a milder climate, the percentage of recoveries is very large. The tubercular insane live in a separate department, at Portland, Oregon, where they enjoy every qualification for modern treatment.

The Educational Department in these more recent departures, seeks, among other things, to educate the natives as to the prevention of tubercular infection. Also as to the dangers of syphilis, its possible cure under appropriate treatment, thereby effecting the lowest possible evil to the living, as well as to the unborn progeny of the native races of Alaska.—*Medical Sentinel.*

Do You Know That

It is dangerous to put anything into the mouth except food and drink?

Sanitary instruction is even more important than sanitary legislation?

The U. S. Public Health Service issues free bulletins on tuberculosis?

The continuous liberal use of alcoholic beverages lowers efficiency and menaces longevity?

Moderate exercise in the open air prolongs life?

"Mouth breathing" makes children stupid?

Fish can not live in foul water nor man in four air?

Smallpox is wholly preventable?

The Constitution of the United States doesn't mention health?

Procrastination in sanitary reform is the thief of health?

A book on "Exercise and Health" may be had free for the asking from the U. S. Public Health Service?

Not everybody can achieve greatness but everybody can be clean?

If you sow a hygienic habit you reap health—reap health and you attain longevity?

Railway cars would be sanitary if it weren't for the people in them?

America's typhoid fever bill is more than $270,000,000 a year?

The full dinner pail is the enemy of tuberculosis?

Reviews and Book Notices

Practical Massage and Corrective Exercises—By Hartvig Nissen, President of Posse Normal School of Gymnastics; Superintendent of Hospital Clinics in Massage and Medical Gymnastics; For Twenty-four years Lecturer and Instructor of Massage and Swedish Gymnastics at Harvard University Summer School; Late Director of Physical Training at Boston and Brookline Public Schools; Former Instructor of Physical Training at Johns Hopkins University and Wellesley College; Former Director of the Swedish Health Institute, Washington, D. C., etc.; autor of "Swedish Movements and Massage Treatment," "Practical Massage in Twenty Lessons," "A. B. C. of Swedish Educational Gymnastics," "Rational Home Gymnastics," etc. Revised and Enlarged Edition of the Author's "Practical Massage in Twenty Lessons," with many additions. With 68 Original Illustrations, Including Several Full-page Half-tone Plates. Philadelphia. F. A. Davis Company, Publishers, English Depot, Stanley Phillips, London, 1916.

This will prove an instructive book to physicians and to nurses. Massage successfully employed occupies an important place in the physicians armamentarium and as a therapeutic agent it is of the greatest adjuvant value in the treatment of diseases. The author's long experience in the practice and study of the art has enabled him to make up a handbook of directions for its practice of the utmost value to its readers. We can conscientiously recommend the work as one of the best recently published.

Progressive Medicine—A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics, Materia Medica, and Diagnosis in the Jeiferson Medical College, Philadelphia; assisted by Leighton F. Appleman, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia, September 1, 1916. Owners and Publishers, Lea and Febiger, Philadelphia and New York. Vol. XIX, No. 3.

We acknowledge with thanks to the obliging publishers the receipt of this excellent quarterly publication. Progres-

sive medicine is in a class by itself, in that it is the only publication devoted exclusively to an exposition of progress and advances made in all departments of medicine and surgery. We know of no other publication that puts in easy reach of the general practitioner every discovery and improvement almost as soon as made. The list of contributors comprise the names of some of the best known writers in the profession. The contents of Vol. III, with the contributors, are as follows: "Diseases of the Thorax and Viscera, including the Heart, Lungs, and Blood Vessels," by William Ewalt, M.D., F.R.C.P.; "Dermatology and Syphilis," by William T. Gottheil, M.D.; "Obstetrics," by Edward P. Davis, M.D.; "Diseases of the Nervous System," by William G. Spiller, M.D. Index. As we have remarked of previous numbers, the serial is a library of itself and every practitioner who wishes to keep himself in the front ranks should subscribe for it.

Publisher's Department

The Prophylactic Importance of Effective Correction of Liver Disorders.

In connection with the modern tendency of medical practice to anticipate many human ills by instituting prophylactic treatment as soon as their possible occurrence is suspected—or, to perpetrate a bull, by "treating them before they begin"—it is especially interesting to note the growing recognition of the part played by the liver in the causation of many common affections. That the liver is an all important factor in the etiology of no small proportion of the metabolic disturbances, intestinal derangements and so-called auto-toxic disorders, is becoming more and more apparent as the physiologic functions of this great organ are given more careful attention and study. Moreover, as facts unfold, it is very evident not only that the importance of the liver has not been fully appreciated, but that prophylactic treatment to accomplish, with any degree of efficiency, the prevention of the ills referred to, must be directly primarily and principally to restoring and promoting the activity of the hepatic functions.

For many years the principal agents for attempting to restore the functional activity of the liver and regulate the portal circulation have been the hydragogue cathartics. In certain conditions these have been serviceable and more or less effective, but in many others they have proven valueless and even harmful, because of the exhaustion and depression resulting from the incidental catharsis.

In any comprehensive or effective scheme of prophylaxis of the affections due to insufficient or perverted hepatic activity the great desideratum is, therefore, to correct the liver condition without producing catharsis or purgation. The remedies that are able to meet this demand are very limited. In Chionia, however, the medical profession have a preparation of Chionanthus Virginica that can be relied upon to ex-

ert a prompt stimulating and corrective effect on the liver without setting up a severe and drastic action of the bowels. The possibilities of such a product must at once be apparent. Certainly clinical experience has demonstrated its therapeutic utility, for under its use the functions of the liver are promptly restored to the normal, with all that this essentially means on metabolic processes in general, the elimination of toxic wastes and the regulation of the bowels. The use of Chionia, therefore, through its potent influence on the liver affords a dependable means of preventing many ills that all too often lead to serious and prolonged invalidism.

Straining at Stool.

It is pretty safe to say that any bodily condition that is aggravated by pressure or congestion is aggravated by that daily straining at stool which is the rule rather than the exception with such a large percentage of humans.

When one stops to realize that in the act of defecation, every abdominal muscle is brought into play, and that many individuals customarily strain at stool with a force great enough to cause their faces to flush and their temporal veins to bulge out, then it is that one appreciates the tremendous force brought to bear locally upon the abdominal and perineal muscles and generally, upon the whole body.

Since defecation is a necessary function, and can not be suspended, it would seem that the best remedy for the difficulty of defecation would be to supply the lubrication that is often lacking.

Whatever will supply such lubrication without enervation or untoward after-effect would seem to be the most desirable method.

There is one outstanding reason why "Interol" does away with, or at the very least minimizes, straining at stool, namely, "Interol" has a peculiar *lubricating body* by which it mixes with the feces before they are feces, spreads over and mixes with them and lubricates them in their passage through the colon, until they reach the rectum, from which

they are finally expelled without necessity of very much straining.

There are other features "Interol" possesses, but this one is perhaps the greatest, and if you are personally interested in this subject, we would be very glad to send you a pint bottle with our compliments, so that you may make personal observation without having to take our word for the merits of "Interol."

When the Stomach Is Tired or Lazy.

The artificial digestives, such as pepsin, pancreative papain, etc., have their place in modern therapy, but they should always be used with care and common sense. How often do we encounter patients who are continually dosing themselves with pepsin or some one of the artificial digestives after each meal? Ninety-nine times out of a hundred this is unwise and a positive harm. Instead, the process of digestion should be encouraged—the stomach urged to do its own work—for any remedy that will specifically stimulate these functions to nearer normal action will produce permanent benefits that can never come from pepsin. Seng is such a remedy, with a well-defined secernent action on the glands and mucous membranes of the stomach that enables it to restore and increase the functional activity of an organ that in the great majority of instances is only over tired or indolent.

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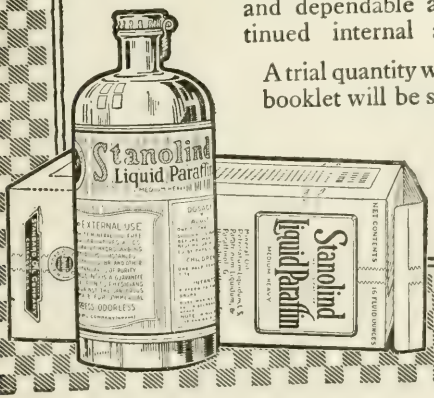

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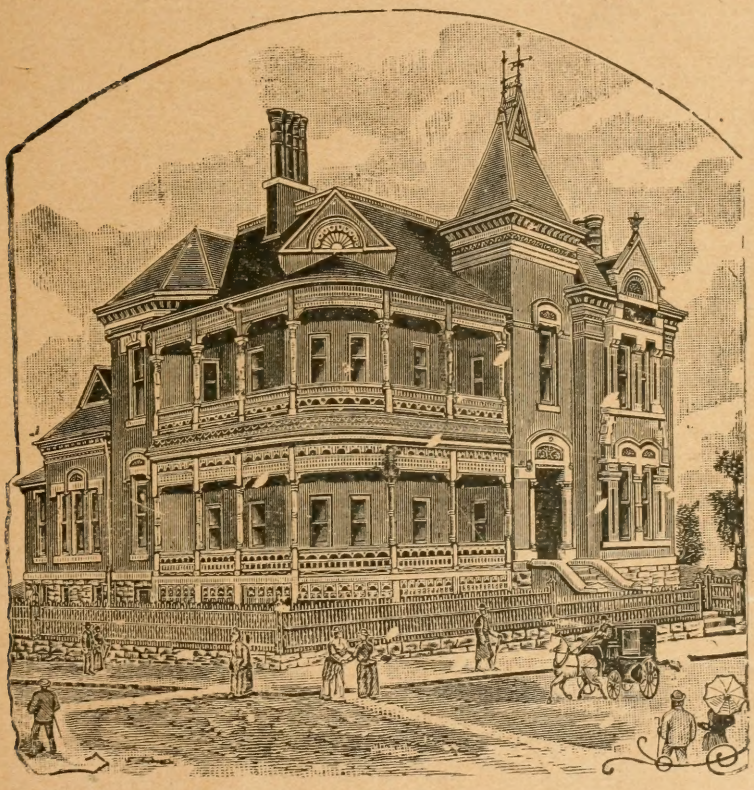

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